



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/727,816

12/04/2003

Charles Hood

16356.836 (DC-05456)

7468

27683

7590

07/28/2006

HAYNES AND BOONE, LLP
901 MAIN STREET, SUITE 3100
DALLAS, TX 75202

EXAMINER

HOFFBERG, ROBERT JOSEPH

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/727,816

Applicant(s)

HOOD ET AL.

Examiner

Robert J. Hoffberg

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-11, 13-18, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11, 13-18, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Response to Arguments

1. Applicant's arguments with respect to claims 1-5, 7-11, 13-18 and 20-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 1-5 are objected to because of the following informalities: "the heat sink" (claim 1, line 13) lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villanueva et al. (US 2005/0030718) in view of Hopper et al. (US 5,761,036).

With respect to Claim 1, Villanueva et al. teach a processor loading apparatus comprising: a board member (#26); a processor socket (#30) mounted on the board member; a processor (#28) seated in the processor socket; a frame member (#14) mounted on the board member; a plurality of connector portions (#16 and #24) on the frame member; a load member (#12) with a first end (#18) connected to one of the connector portions and a second end (#16) connected to another one of the connector portions, whereby the connection of the second end the retains the load member into a substantially parallel engagement (Para. 0019, line 16) with the processor and urges

(Para. 0010, lines 8-9) the processor into the processor socket; and the load member having an opening (#20) formed therein permitting the processor to extend through the opening (See Fig. 4) into contact with a heat sink (#34), whereby the load member urges (Para. 0010, lines 8-9) the processor into contact with the socket without applying a force (Para. 0010, lines 11-14) to the heat sink. With respect to Claim 2, Villanueva et al. further teach that the frame member surrounds the processor socket (see Fig. 2). With respect to Claim 4, Villanueva et al. further teach that the first end of the load member is pivotally connected (#16) to one of the connector portions and the second end is latched (#18) to another one of the connector portions. With respect to Claim 5, Villanueva et al. further teach that the processor includes a thermal connection surface (#28 top). Villanueva et al fails to teach a curved resilient load member that deforms the curved load member into a substantially parallel engagement. Hopfer et al. teaches a curved resilient (see Fig. 1) load member (#16) that deforms the curved load member into a substantially parallel (see Fig. 1) engagement.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the processor loading apparatus of Villanueva et al. with the curved resilient load member of Hopfer et al. for the purpose of biasing force of the processor against the socket to insure electrical and mechanical contact (Col. 8, line 7).

5. Claims 3, 7-11, 13-18 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villanueva et al. (US 2005/0030718) in view of Hopfer et al. (US 5,761,036) and further in view of Ma (US 6,791,847).

Art Unit: 2835

With respect to Claim 3, Villanueva et al. in view of Hopfer et al. teach the claimed invention except for a support member. Ma teaches a support member (#72) mounted on the board member (#50) adjacent to the frame member with the curved resilient load member of Hopfer et al. member (#30). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the processor loading apparatus of Villanueva et al. in view of Hopfer et al. with the support of Ma for the purpose of using the support member on an opposite side of the board to fasten the frame member to the board member.

With respect to Claims 7 and 9, Villanueva et al. teach a heat sink mounting apparatus comprising: a board member (#26); a processor socket (#30) mounted on the board member; a processor (#28) seated in the processor socket; a frame member (#14) mounted on the board member; a plurality of connector members (#16 and #24) on the frame member; a load member (#12) with a first end (#18) connected to one of the connector members and a second end (#16) connected to another one of the connector members, whereby the connection of the second end retains load member into a substantially parallel engagement (Para. 0019, line 16) with the processor and urges the processor into the processor socket; a heat sink (#34) mounted on the frame and adjacent to the load member; and the resilient load member having an opening (#20) formed therein permitting the processor to extend through (see Fig. 4) the opening into contact with the heat sink, whereby the load member urges (Para. 0010, lines 8-9) the processor into contact with the socket without applying a force (Para. 0010, lines 11-14) to the heat sink. Villanueva et al. fails to teach a support member and a curved resilient load member that deforms the curved load member into a substantially parallel engagement. Hopfer et al. teaches a curved resilient (see Fig. 1) load member (#16) that deforms the curved load member into a substantially parallel (see Fig. 1) engagement. Ma teaches a support member (#72) mounted on an opposite side (see Fig. 1) of the board member (#50) and adjacent to the frame member (#30).

With respect to Claim 14 and 16, Villanueva et al. teach a board member (#26); a processor socket (#30) mounted on the board member and coupled to a mass storage device (Para. 0004, line 5) and a system memory (Para. 0004, line 5); a processor (#28) seated in the processor socket; a frame member (#14) mounted on the board member; a plurality of connector members (#16 and #24) on the frame member; a load member (#12) with a first end (#18) connected to one of the connector members and a second end (#16) connected to another one of the connector members, whereby the connection of the second end retains the load member into a substantially parallel engagement (Para. 0019, line 16) with the processor and urges the processor into the processor socket; a heat sink (#34) connected to the frame member adjacent to the load member; and the load member having an opening (#20) formed therein permitting the processor to extend through (see Fig. 4) the opening into contact with the heat sink, whereby the load member urges (Para. 0010, lines 8-9) the processor into contact with the socket without applying a force (Para. 0010, lines 11-14) to the heat sink. Villanueva et al. fails to teach a support member and a curved resilient load member that deforms the curved load member into a substantially parallel engagement. Hopfer et al. teaches a curved resilient (see Fig. 1) load member (#16) that deforms the curved load member into a substantially parallel (see Fig. 1) engagement. Ma teaches a support member (#72) mounted on an opposite side (see Fig. 1) of the board member (#50) and adjacent to the frame member (#30).

With respect to Claim 8 and 15, Villanueva et al. further teach that the frame member surrounds the processor socket (see Fig. 2).

With respect to Claim 10 and 17, Villanueva et al. further teach that the first end of the load member includes a pivotal connection (#16) and the second end includes a latched connection (#18).

With respect to Claim 11 and 18, Villanueva et al. further teach that the processor includes a thermal connection surface (#28 top).

With respect to Claim 13 and 20, Villanueva et al. further teach that the heat sink engages (see Fig. 3) the thermal connection surface.

Regarding method claim 21, the method steps recited in the claims are inherently necessitated by the device structure as taught by Villanueva et al. in view of Hopfer et al. and further in view of Ma as recited above in the rejection to claim 14.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the processor loading apparatus of Villanueva et al. with the curved resilient load member of Hopfer et al. and the support of Ma for the purpose of biasing force of the processor against the socket to insure electrical and mechanical contact (Col. 8, line 7) and providing a support member on an opposite side of the board and provide rigidity for fastening the frame member to the board member.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Brown et al. (US 4,460,223), Malhi et al. (US 5,088,190), Ma et al. (US 6,832,919) and Shirai et al. (US 7,001,197) teach a board member, a processor socket, a processor, a frame member with a plurality of connector portions, a curved resilient load member connecting to the frame member having an opening permitting

Application/Control Number: 10/727,816
Art Unit: 2835

Page 8


the processor to extend through the opening into contact with a heat sink, whereby the load member urges the processor into contact with the socket without applying a force to the heat sink.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJH



07/21/06

MICHAEL DATSKOVSKIY
PRIMARY EXAMINER